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# INSTRUCTIONS

AND

EXPLANATIONS.



## BICKFORD

FAMILY

# Knitting Machine.



# Illustrated Instructions

FOR

SETTING UP AND RUNNING

THE

## BICKFORD

# Family Knitting Machine,

ALSO

FOR MAKING THE DIFFERENT ARTICLES THEREON.

THESE MACHINES AND THEIR PRODUCTS WERE INVENTED BY  
DANA BICKFORD, AND ARE THOROUGHLY COVERED  
BY NUMEROUS LETTERS PATENT.

MANUFACTURED BY THE

## CHAPIN MACHINE CO.

OFFICE AND SALESROOM,

572 AND 574 BROADWAY,

NEW YORK.

HARTFORD:

CASE, LOCKWOOD & BRAINARD, PRINTERS.

1871.

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## INTRODUCTION.

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I present you this book to explain to you my position, and give you the confidence in my business and machine that every one should have before recommending a thing to their friends; and if you will look it through carefully, you will see what claim I have upon your confidence and patronage. In investigating the Knitting Machine business some over three years ago, I came to the conclusion that this branch of improvements had been left out entirely, and that it was my business to make a good labor-saving machine; and since that I have struggled through all manner of difficulties and disappointments, but have been determined all the while to succeed in presenting every household with one of the most useful and complete pieces of mechanism in the world; something that would enable the weary housewife to have a few hours of rest and recreation, as well as the matrons and young ladies of leisure and fashion to have a never failing fountain of pleasure as well as solid enjoyment. And feeling that no lady would object to spend her leisure moments in constructing something beautiful as well as useful, if she had a neat, handy article to do it on; and knowing that articles entirely improvised and completed by some dear friend are more highly prized than the most expensive articles made by others, I have kept pushing on until I have brought my machine to that perfection that the public demand before they are willing to spend their own money and recommend their friends to do so. Since I commenced some others have attempted, by infringing upon my improvements, to put something they call Knitters, into competition with me; but parties will not have to hesitate which to buy, for there is no attempt that will do one-fourth what mine will do. All improvements, excepting

the bare construction of a straight tube, belong to me, and are covered by numerous Letters Patents, etc. And finally, in my first machine I could make only a straight tubular web, and that had to be cut into work.

The Machine that I now present you is complete in every part, and far excels all others, and with our improved advantages for manufacturing, no family could invest two hundred dollars in any business or bank that would pay them as much interest as this machine would, costing only thirty dollars; and they could not procure for any money the amount of pleasure and enjoyment that one would give them.

If this machine is compared with others, it will be found to excel in every point.

It is much more simple in the construction of all its parts and movements.

It is not liable to get out of order either by transportation, use, or standing.

It is made as well as skill and perfect tools and machinery can make it.

It far excels in quietness of operation and ease of working.

It requires far less skill to operate it than any other.

It will not break the thread or drop the stitches if in proper order.

The needle was invented entirely for this machine, and is patented by myself, and no other party has any right to use it.

It is adapted to all kinds of plain as well as fancy knitting, and in fact it will knit anything or everything that the most ingenious lady can knit or crochet, from a watch cord to a bed or carriage blanket. (See circular.)

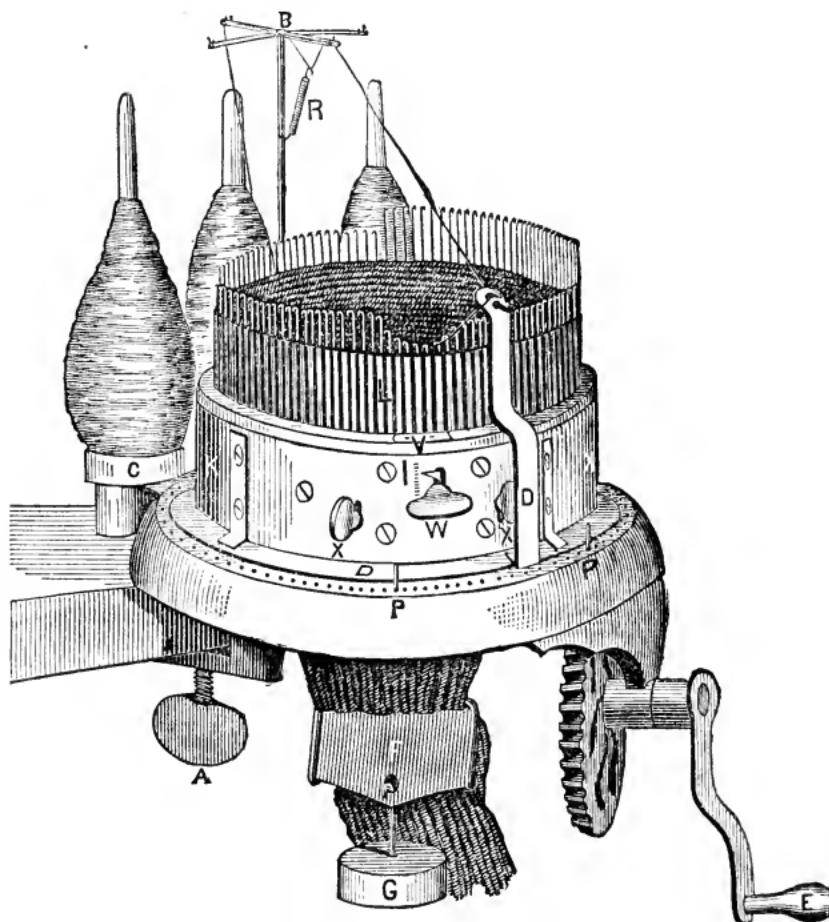
It has no tension, therefore it does not wear or tear the yarn to pieces; it can be raveled and knit over fifty times if necessary.

DANA BICKFORD.

## TO LADIES.

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Now, Ladies, we want your assistance in convincing the general public that no household outfit is complete without one of **DANA BICKFORD'S IMPROVED FAMILY KNITTERS**, and as a matter of economy, no family can for a day afford to be without one. Of course you will all feel it a pleasure to aid me, even free from charge, as you would in the advancement of any other great improvement; but still I will give one of my latest Machines, finished in the best manner, to the one that aids me the most in each four months; and to the next, a beautiful (child's) carriage blanket made upon the machine. I shall keep your accounts fully and separately, and the articles will be given according to that account.



A — Thumb-screw to fasten machine to table.

B — Yarn-stand.

C — Pins for Bobbins.

D — Yarn-carrier, etc., Sliding ring to which Carrier is attached.

E — Machine Handle.

F — Buckle.

G — Weights.

K — Revolving Cylinders.

L — Needle Cylinders.

V — Ring Clasp.

WW — Cam and Screw for changing length of stitch.

I — Indicator, to show distance moved.

XX — Swing-cams and their thumb screws.

PP — Pins for knitting flat web.

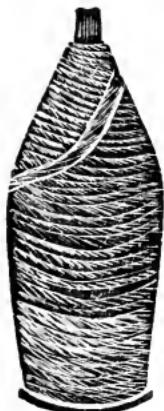
R — Take-up.

M — Set-up.

N — Looper.

## SETTING UP THE MACHINE.

Take the Machine carefully from the box, and screw it firmly to a table or stand ; screw in the Yarn-stand B, and turn the machine slowly until you are satisfied that everything is right and ready for work.



BOBBIN.

### WINDING THE BOBBIN.

The winding a smooth, easy-running Bobbin, is one of the most essential and important things to be learned, and the directions must be followed closely if you wish everything to go right, and prove satisfactory. Begin at the base and wind in the form of a cone (see cut) ; be sure and not allow one course to bind in another, but let them run up and down the cone smoothly, (as on cut H,) so the yarn will run off the top without clinging or causing tension. Coarse yarn should be wound close, but fine and soft twisted yarns or wortseds should be wound loosely, but smooth.



CAMS.

It would be a good plan before you set your work up on the machine, to open the clasp V and take out the needles, being sure to

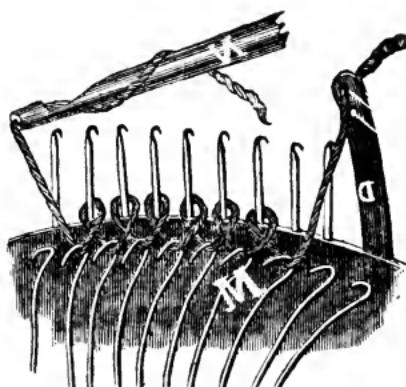
notice particularly where they belong. After you have taken them all out, lift off the revolving cylinder K and examine the cams to see what forms the stitch and governs its length ; you will see that there are three cams, W and XX (see cut,) with thumb set-screws WXX attached ; cam W slides directly up and down, and draws down the needles to form the stitch, after they have been driven up by the pivoted or swing cams XX. These swing cams can be one up and one down, or both up or down ; if they are both down the machine will not knit, and it is a good plan to put them both down while you are setting up your work, or if you leave the machine with the work on, as it cannot be run off if turned by accident or any other cause. You will see that the needle has to be driven up by XX as in cut, the arrow showing which cam is up and which way the machine turns to free the latch from the loops and catch the yarn before it is drawn down by W to form a new stitch ; consequently, in knitting either way, the swing cam X must be up, forward of the draw down cam W, (see cut.) You must have them both up in knitting a flat web or heel ; it is best, however, when you are knitting a circular web, to have the back or hind swing cam X (see cut) down, then the latch is not freed from the stitch until it is ready to be drawn down ; this prevents the latch flying up and dropping stitches.

### CHANGING THE LENGTH OF STITCH.

To change the length of stitch so as to make tight or loose work, the cam W at the side that forms the stitch, must be moved up for shortening and down for lengthening. This is done by first loosening the cam screw W, and raising or depressing the cam. The indicator I at the top of the screw, shows the distance moved. In using very coarse yarn, or if you wish for an open or long stitch, your indicator or cam must be down ; and in using the finest yarn or making a very close stitch, your indicator must be up or nearly np to the top ; so, in having different sizes of yarn, you must adjust the cam W to the particular yarn you are knitting.

If the yarn runs loose over the needles without making a perfect stitch, the cam screw W is loose, or the stitch is too short for the yarn used, requiring the cam W to be depressed ; always be sure to tighten the cam-screw after moving it before starting the machine. The tighter or firmer your work, the more weight will be required to keep the loops down to the cylinder, so that the needles can pass up through them to form the next stitch. If the stitches cling to the needles as they are driven up to catch the yarn at the carrier D, you can see at

once they will not knit, as the needle has to pass up through to bring the latch of the needle above the loop, so that, in drawing down after it has caught the yarn, it can close the latch over the hook and allow the loop to pass over the end to form the next row of stitches. You can use one, two, or three threads, being sure that the length of the stitch is sufficient to prevent the work from being too close. It is better to practice on some plain work until you understand the machine thoroughly, for if these rules are not followed the work will not prove satisfactory.



### TO SET UP THE WORK.

Bring the Carrier D to the left hand side of the machine; place the bobbins upon the pins C, and put the yarn through the eye of Yarn-stand B, directly over the bobbin from which you wish to knit; put the yarn through the upper eye of carrier D, bringing the end inside the cylinder; put the Set-up in the centre of the machine, bringing the hooks even with the top of the cylinder, thread the yarn upward through the eye of the Looper (see cut,) drawing through about two yards, or enough to form the loops; use the left hand to hold the set-up in place, and the right to form the loops. This is done by bringing the Looper on the right side of Carrier D, then putting the yarn over a hook of the Set-up, and then up round a needle from right to left, which twists the yarn around the needle, and forms a loop; then round another hook and up round the next needle as before; continue looping the yarn round the hooks and needles until you have all above the cylinders filled; now attach the weight-hook to the end of the Set-up, and suspend your weights from it (see cut;) now turn your machine slowly to the right to bring up

the remaining needles, and fill these also with stitches; drop the looper and end of yarn in the centre of Set up, and turn the handle slowly until every stitch is perfect, and you have adjusted your cam W to the size of yarn used, and length of stitch required. This forms a selvedge edge at the top of your work—the shorter your loops the closer your selvedge. Or you can start with a piece of knit-work by passing it up through the cylinder, and putting a loop over each needle, or as many as is necessary; put on your buckle F, and weights G (see cut,) and thread the carrier as described above; then proceed to knit.

### TAKING OUT NEEDLES.

To take out the needles, first open the clasp V, then lift them out of the open space; if you wish to take out one or two when the work is on, put the loops on the adjoining needles.

### SEAMING.

To make two and one seamed work, take out every third needle.

To make three and one seamed work, take out every fourth needle.

To make four and one seamed work, take out every fifth needle.

### KNITTING A STOCKING OR SOCK.

To knit a stocking or sock, commence as directed for new work, knitting the length required for the leg. If you wish it seamed at the top, take out every third or fourth needle, knitting about three inches, more or less, in length, then return them to their place again, taking the under part of the adjoining stitch and putting it over the needle which was just put in, to form a new stitch. Then knit on three or four inches plain. The stitch may be made loose over the calf of the leg, and gradually tightened to the ankle, shaping it nicely; or it may be narrowed down to the size desired by taking out needles. This is done by first taking out one exactly in front, putting the stitch over the next needle, then knit round six or seven times, and take out the third needles on both sides of the one first taken out; knit round six or seven times again and take out two more; so continue to knit and take out needles till the leg is narrowed to the size desired; you are then ready for the heel. For a common sock you will usually need to take out thirteen or fifteen needles; the number of times knitting between the needles taken out may be determined by the length you wish the leg of the sock to be, which is about one hundred times round for a common sock.

## HEELING A STOCKING OR SOCK.

In heeling a stocking or sock, you can knit either a square or a round heel,—the square heel is knit as follows : After knitting the leg long enough, stop your machine with the carrier D on the back side of the machine, and pull up one-half of the needles in front, (see cut of machine,) so they will pass over the cams without knitting, for the instep ; now insert the pins found with the extra needles, one on each side opposite the fourth needle of those drawn up, and draw the yarn down through the slot of Stand B, and attach it to the hook of the small spiral Take-up R. (See explanation.)

The object of the holes in the base of the machine is to insert these pins for the purpose of gauging the width of work knit ; for example—in using thirty-three needles for knitting the heel, insert these pins far enough beyond the number of needles used, so you can form each stitch perfectly on either side of the web. After the carrier D strikes the pins, continue turning the machine until the sliding ring that the carrier is attached to comes to a full stop. This places the carrier opposite the other cam in a position to knit the other way. You must be sure and make this change, or it will throw off the stitches on the backward course. So continue to knit backward and forward until your heel is long enough, being thirty-six times for a common sock. Keep the hooks, or buckle F, well up on the web, so as to hold the edge down and make a perfect stitch ; now run off the heel and close it up ; take up the loose loops on the selvedge of the heel on the needles the heel was on, and push those of the instep down in place, and proceed to knit the foot the length required, being seventy times for a common sock.

To knit the round heel (which is the quickest and which many like the best,) proceed as follows : Stop the machine and put up one-half of the needles as before for instep, and place the pins the same as before ; now turn the machine as far as you can to the left, reverse and knit back to the right, and pull up the first needle on the left, next to those already drawn up ; knit back to the left and pull up the first needle on the right next to those already drawn up ; so continue to knit across and pull up needles first on one side and then on the other, until you have up one-third of the needles on each side of the heel ; this leaves one-third down. Now, having narrowed the heel, commence and widen out to the same size started from ; to do this, knit across once, then push down the last needle raised up ; knit across again and push down the last one raised up on the other side ; so

continue until your heel needles are all down ; now push down the instep needles and proceed to knit the foot.

### TOEING THE STOCKING OR SOCK.

The toe can be knitt in the same manner as the heel ; after it has been narrowed and widened, run it off and close the end loops together. Or, you can raise up one-half of the needles and narrow one-third on each side as before ; now push down the other half and narrow in the same manner ; run the whole off and close the open loops of the two sides together. Either way is good, but the latter prefer'a'le.

To knit double heels and toes, use two threads.

Old heels and toes are quickly and nicely mended by knitting new ones on, saving much time and trouble.

### CHILDREN'S SOCKS.

To knit smaller or children's socks, you can take out every other needle, forming a sock about one-half the size of the cylinder, being sure to have the stitch as short as possible. For sizes between this and larger, you can remove every third, fourth, or fifth needle. To knit still smaller ones, you must knit it in a flat web and close together on the back.

### TO KNIT FLAT WEB.

Place the pins on each side four needle spaces beyond the width to be knit ; take out the rest of the needles or not as you choose, and proceed as in knitting heels. Nearly the full width of the cylinder can be knit. Be careful after you have knit flat web, or after the machine has not been used for some time, to see that the carrier D is adjusted properly to knit circular work. The carrier D being in front of the machine, should be pushed to the right as far as possible ; it is then in position to knit without dropping stitches.

To knit flat webs together first knit one web, and when you commence the next one, take the first loop of the selvedge of the lower right hand corner of the web already knit, and put it over the last needle in the row or at the left hand side when the carrier stands to the right ; then knit across to the left, and back to the right again ; throw over the next loop of the selvedge and continue to knit and pass over loops till the web you are knitting is as long as the other. To join these to another, pass them both up through the cylinder as

before ; in this manner you can knit strips of any width, or can connect narrow strips of different colors to form tidies and other fancy work.

### SEAMED BACK AND GORED FOOT STOCKINGS.

To knit a stocking with seamed back and gored foot, knit it open on the back with selvedge edge, for ladies' hose (using the fine cylinder) knit as wide as you can about two fingers in length, then narrow by taking a stitch from a needle at each side, and placing it over the adjoining one, then knit seven courses and narrow as before ; so knit and narrow seven or eight times, with seven courses between, or until you have narrowed sufficiently ; then knit a finger in length for ankle ; now take one-half of the stitches (one-fourth of them being dropped off on each side, or one-fourth of the needles can be drawn up as described for heeling in another place,) and knit the top of the foot the required length, and narrow the toe in the following manner : Narrow by taking a stitch from one needle at each side, and placing it over the adjoining one ; knit across four times and narrow as before ; then four times again and narrow, then three times and narrow, three times again and narrow, then twice and narrow, then narrow every time until you have eight or nine stitches left. Take these off the machine and draw the yarn through them ; now take up the stitches dropped on as many needles (bringing selvedge together,) and knit the heel the length wanted, remembering that the heel must be as many courses longer than a plain foot as times narrowed on gore. Then drop off the stitches by breaking the thread, and close off ; then take up the selvedge edge of the heel on as many needles as courses knit ; now knit across once without narrowing, across again and narrow on one side, again and narrow on opposite side, then two courses and narrow on both sides ; so on until you have narrowed five times with two courses between the narrowing ; then continue the same width until the bottom of the foot is as long as the top ; narrow the toe as on other half, then close the selvedge edges neatly, and you have as good ladies' hose as can be knit. Misses' hose can be knit upon a less number of needles.

If you do not want to knit a selvedge back to a sock, make the leg plain, drop off one-half of the stitches on the needles ; knit the top of the foot as just described, then follow the same directions for the heel and bottom of the foot, goring it by narrowing, and closing up the selvedge edges neatly. If you want more stitches than your cyl-

inder contains, you can knit two webs together as described elsewhere, and it will not show at all when it is closed.

### MITTENS.

Knit the mitten the necessary length, narrow and close the end like the toe of a stocking ; then cut crosswise the mitten one-third of the stitches for the thumb, allowing two-thirds of these stitches for the inside of the hand ; take up the stitches on the upper part (or towards the wrist) on as many needles, and knit back and forth till long enough to narrow ; then narrow four times, knitting twice between ; run off and draw the yarn through the remaining stitches, close it up, taking up the stitches on the hand part, with the selvedge loops on the side of the thumb, thus forming the gore and finishing up the thumb. For ladies' or children's mittens, they should be knit in a flat web and closed up. In this way you can knit in the gore by widening on each side of the selvedge ; when you have widened enough stitches for the thumb, drop them off and proceed to knit the hand and narrow it off ; now take up these stitches that you widened, and knit the thumb as before ; close up the mittens, always being careful to mate them.

### BALMORAL WORK.

To knit balmoral work, select the colored yarns to be used, winding each color on a separate bobbin, using them instead of balls as you would in hand knitting, always changing on the same needle, which, for convenience, can be in the centre of the back part of the machine : then knit the number of times round desired with the first color, putting the second color into the carrier, under the hook of the needle above mentioned, thus ending and commencing on the same one, and place the bobbin of the color just finished in the inside of the web, being sure to take this yarn from the carrier. In this way any number of colors can be used, according to the taste of the operator.

### RUCHING OR TUFTED WORK.

FOR SAMPLES OF WORK SEE FIGURES NOS. 3, 13, 16.

To knit Ruching or Tufted work, we have a number of different ways. Set up the work on from three to any number of needles, say for example, ten ; knit across, bringing the carrier D to the left hand side ; take the yarn from the carrier and loop it over the first needle on the left hand side, then over your finger or tufter, (sent for

the purpose,) then over the next needle and your finger or tufter again, and so continue till your yarn is back to the first needle at the right where you begin to knit ; now turn the carrier D round to the needles, holding the yarn in the left hand, so that the carrier D in passing will take it, and knit across to bind in the loops ; be sure to hold down the finger or tufter that the loops are on, so that the needles can pass up through the loops and knit them in. You can put your worsted or yarn over each needle two or three times, as you wish, or you can knit in diamonds, squares, or monograms of different colors. You can make the loops as long or as short as you please, also use as many colors as will suit the taste.

These strips of Ruching or Tufted work can be used to trim cloaks, coats, dresses, or anything that you would use astrachan or fur for ; or can be made into muffs, collars, wristers, caps, fringe mittens, etc. Carriage robes can be knit or made from these strips of Ruching in fancy colors or plain. Also carriage and door mats.

In knitting this work you can use one thread for the foundation and others for the loops if required, or use the one thread for both foundation and loops. Strips of this tufting with fringe attached to the edge of it, makes elegant trimmings for dresses, etc.

### FRINGE.

In knitting fringe you can use from two to thirty needles, according to the width of heading desired. Place the needles in the front part of the machine ; put the blank (sent with extra needles,) in the back part, directly opposite ; start up your work by using a piece of knit work as before described, or by looping a thread over each needle, tying them together at the bottom ; put your weight hook into this to keep it down ; now put your yarn into the lower eye of carrier D, and turn your machine to the right ; when you have filled your fringe needle, lift the loops off, allowing them to drop down ; continue in this way until you have as long a strip as you require. If you wish two or more colors, knit around so many times with one color and then put on the next color ; so proceed, being particular to knit each one a given number of times if you wish it to look nice. Tie from two to six of these threads together, being careful to knot them close to the heading. If you wish fringe half this length, use needles both in front and back of the machine, and cut it in the middle.

A person will easily see how they can knit the fringe as long or as

short as they choose. Be very careful to knot it close. You can knit fringe in a flat web with fancy stitch for heading. After learning to knit flat web you will readily see how you can do it.

### CORD.

In making cord one, two, three, four, or five needles can be used; one will make a chain, two a square stitch, three a perfectly round cord, four a square cord, and five round on one side and flat on the other. Put the number of needles required in the back part of the machine; start it up by looping a piece of knit work over the needles, hang on the weight-hook, and put the yarn through the lower eye of carrier D; turn the machine to the right with the right hand, and hold the yarn in the left hand, drawing it just enough to keep it straight between the carrier D and needles, so as to make the last stitch the same as the others; and also to draw the thread close as the machine passes round from the last needle to the first. If you wish it flat on the back side, you can leave the back loop a little longer, or knit directly backward and forward. This will be easily understood when you have your machine ready for use. This cord can be used for picture or curtain cords, and made of different colors, or can be made into mats, etc. You can also knit around elastic and other cords, with silk or worsted, or around wire tubing, or any thing of the kind.

### SCARFS.

The plain scarf is knit circular on all the needles, then laid flat and finished with fringe or tassels. You can put different colors, as well as ornamental stitches, monograms, etc., in the ends, making them very pretty. Fancy scarfs can be made of the herring-bone, diamond, zig-zag, spiral, or any of the other fancy stitches, and made up single or double.

The spray stitch scarf is knit by putting the stitch over two needles instead of one, being careful that the yarn does not cling, and thereby form new stitches. This can be finished with tassels or fringe.

The shell scarf is knit with two needles in and four out all around the machine; when done, turn wrong side out and finish with tassels. This is very pretty for children.

The scalloped scarf is very pretty knit over all the needles, by simply changing the length of stitch, knitting from two to eight or more courses on a short stitch, and five, six, or more on the very longest.

You can also knit pretty scarfs with every other needle out, two in and two out, three in and three out, or any way suggested by the taste of the operator. Many of them look nice turned inside out, and can be finished with fringe or tassels.

### AFGHANS, BLANKETS, SPREADS, &c.

Afghans, &c., can be knit in a circular web, then laid flat and crocheted, sewed or knit together, or put together with a cord. They can be knit in a flat web plain, or of some fancy stitch, and knit together on the machine, (see directions for flat web.) You can finish them with fringe, or narrow down the end of each strip to a point, and put on tassels. Bed, and all kinds of blankets and spreads, piano and table covers, rugs, etc., are knit in a similar way.

### OPEN WORK.

To make open work for tidies, etc., lift the stitch from every other needle and put it over the next; do this all the way around, or as far as you wish. Knit around three or more times, and put them over again; this makes a plain open stitch, and is nice for many kinds of work.

### DIAMOND STITCH.

After knitting plain a few rows to get the work well started, commence by taking the stitches from every other needle and putting them over the next; then knit around once forming loops on the needles from which the stitches were taken; then knit once more, binding the loops in; now remove the stitches again and knit around as before; continue removing the stitches and knitting as described. In this way you can form diamonds, squares, monograms, or any letter or figure you wish.

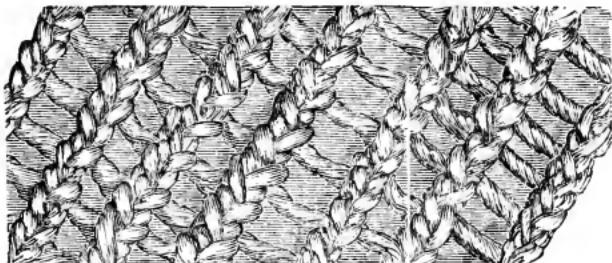
### SPIRAL STITCH.



Commence as before, by taking the stitches from every other needle and putting them over the next; then knit around once forming

loops on the empty needles; remove these loops to the next needles, being sure to put them all the same way; knit around again and remove the loops as before; continue to knit and remove loops always the same way through your whole web, or a short distance, then knit plain, then spiral again; or you can knit four stitches spiral and four plain all around the machine, which makes very pretty work for undersleeves, or anything knit tubular.

### ZIG-ZAG STITCH.



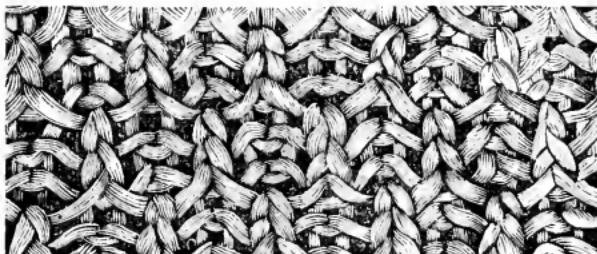
Commence as before, by taking the stitches from every other needle and putting them over the next; knit around once forming loops; remove these loops all to the right over the next needles; knit again and remove the loops all to the left; so continue to knit and remove the loops first to the right, then to the left, and so on. This stitch is very pretty for cotton tidies, hoods, capes, etc.

### HERRING-BONE STITCH.



Commence as before, by taking the stitches from every other needle and putting them over the next; knit around once forming loops over the empty needles; remove these loops all to the right over the next needles; knit again and remove the loops as before; do this three or more times to the right, then three or more times to the left, and so on.

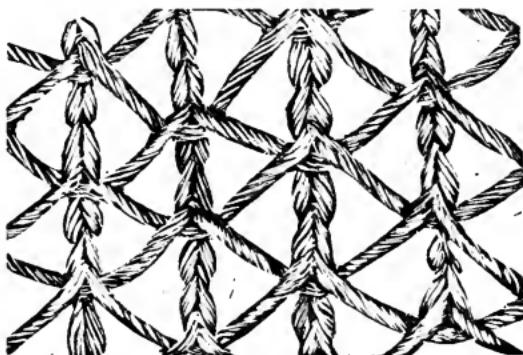
You can knit a flat web and form scallops on each edge, the size of scallops to be regulated by the number of times knitting and removing the loops before reversing them; four or five times makes a very pretty scallop. These scallops can be knit together by joining the points of the scallops, or can be fitted to each other so as to be impossible to tell where they are joined. In this way a breakfast cape, or shawl, etc., etc., can be knit, having the center all one color and the border different. You can finish the edge of these articles with these scallops or with a fringe, ruching, or a narrow strip knit in any of the fancy stitches, and gathered on the edge. You can knit blankets, bed or table spreads, and knit them together by machine so they will not show where they are joined. One strip can be knit plain and the next of some fancy stitch, and so on, having each strip different. These you can finish with fringe, ruffling, or any other ornamental edge.



### PINEAPPLE STITCH.

Commence as directed before, by taking the stitches from every other needle and putting them over the next; knit around once forming loops; then remove the first loop to the right, the next to the left, the next to the right, and the next to the left, and so continue all the way around the web; knit again and remove the loops as before; knit again and remove as before. Now knit and remove the first loop to the left, the next to the right, the next to the left, and the next to the right, as many times as before; continue placing them three times or more one way, then three or more times the other way, being careful that you commence to remove them on the same needle every time.

### HONEY-COMB STITCH.



Commence as before, by taking the stitches from every other needle and putting them over the next; knit around once forming loops on the empty needles; remove the first loop to the right, the next to the left, and so on around the machine; then knit again and remove the first loop to the left, and the next to the right; continue to knit and remove the loops, reversing them every time, being careful to commence every time on the same needle.

### HINTS TO BEGINNERS.

Possibly, even after following the foregoing instructions, the operator may find the machine not working as represented, and we would hereby assure them that the machine fails to be in working order not because it lacks merit, but because of injuries.

Sometimes, from the above causes, the carrier D may possibly get bent either in or out. Should it be bent in too close to the needles they will in coming up either press the yarn away from the hooks, or allow it to slide down back; in either case it will drop stitches, and the carrier must be sprung out a little. Should it be bent out too far, it will carry the yarn so far from the needles as to prevent its being caught under the hook, causing the stitches to drop and the work to run off, in which case it must be pressed in sufficiently to allow the needles to take the yarn and form a new stitch. Should it, in running either way, hit the needles on top, the point must be raised a trifle.

Sometimes complaints are made about the machine cutting or breaking the yarn. Now this will be found an impossibility if everything is right. Some of the causes for this are as follows: First, the stitch is made so short that the needle will not pass up through it to

form the next stitch, and so many of these loops are allowed to load themselves upon the needles that they cannot be drawn down through the groove and must of necessity be cut off. Again, if the bobbin is unevenly wound, so as to run badly, or you get it upon one pin and the yarn through the eye in the stand B, over the top of some other, (see directions for this,) or your yarn becomes wound round the stand, or a knot is so large as not to pass through the eye of the carrier or yarn-stand B, or under the hooks of the needles, (still no ordinary knot will injure the work as it passes inside out of the way.) In either or all of these cases of course the yarn must separate and injure your work; but whenever, from any of these causes the yarn does break, you can remove the weights, raise the work up a little from underneath with the left hand, being careful not to slip it off the needles, find the end of the yarn and ravel it back by pulling it over the hook of each needle, causing the underneath stitch to drop back over the same needle until you come round to the carrier again. After a little practice one will find they can easily ravel back as far as they choose without losing a stitch.

If the machine should run hard for want of oil, you must first remove the clasp V and drop a little oil from the oiler into the grooves, then turn the machine, thus carrying the oil directly to the cams where it is needed. The other bearings can be easily seen, and are oiled in the usual way.

### CHANGING CYLINDERS.

We have a number of different cylinders, both coarse and fine; the coarse has seventy-two and eighty-four needles, called twelve gauge; and the fine, one hundred and one hundred and eight needles, called twenty-four gauge. To change one cylinder for the other, first take out the needles as before directed, lift off the cam or revolving cylinder K, and unscrew the yarn stand B, then turn the machine upside down, take out the two screws that hold the cylinder L in place and remove it; take the screws from the other cylinder and place the bed-plate of the machine upon it, being careful to have the screw-holes in the same places in which the others were, and see that the cylinder fits closely to the shoulder all around; put in the screws and the other set of needles in place of those removed, and it is ready for use.

## ANSWERS TO GENERAL CORRESPONDENCE, &c.

We have from seventy-five to one hundred letters daily, asking us all manner of questions about our Knitting Machine—whether it will do everything represented—whether it is as good or better than other Knitting Machines—and will it knit a stocking or sock complete or whole—will it knit different sizes, and really do all the beautiful things represented—and many other questions, which of course are written in good faith, and if we do not take time to answer them the writers will say at once that the concern is a humbug. For these reasons I now present you this and other articles in this Book, hoping they will answer the most of these questions, and give you all perfect confidence in our machines and business.

We also have many letters requesting us to send machines away, here and there on trial and for exhibition; perhaps many to merely satisfy their curiosity. Now we are not afraid of people's disliking our machines if they understand them, for we can get thousands of the best of recommendations, and we do not know of any one that has the new machine and has learned to operate it, but will testify to everything we say, and you could not buy many of them at any price if they could not replace them with the same kind of machine. Now if people will use their own good sound judgment in this as in their own home matters, they will see at once it would be impossible for us to do this, as the article is new, and there would be a great curiosity to merely see it if it cost only the expressage. It might pay us in a long run, as people would remember what they had seen, and purchase in the future if not now; but it would require so much capital and so many men at the present time, that we should have to both slight our work and charge more for our machines; so we have done the next best thing by getting good sound men into the business—men whose reputation is known to you all, and those who would not interest themselves in anything unless it was a public benefit.

We have, also, about two hundred thousand dollars invested in the machines in different ways, and have one of the best manufactories in the country, and we guarantee everything to be just as represented, and stake our reputation upon it. That, certainly, should be sufficient to convince the most skeptical, and make them see that they run no risk whatever in sending their orders at once, and in doing all they can for us in talking it up to others.

Fig. I.



Fig. 2.



## DESCRIPTION OF GOODS.

I furnish with this description what cuts I have now ready, and shall add many more in my next edition, which I shall complete as fast as possible.

Fig's 1 and 2 show a cape for an elderly lady. The foundation of this is made of the zig-zag stitch, with a narrow strip of the herring-bone stitch run all around it as shown; then a small cord of different colors is laid on this strip in two rows; the bottom is finished with a frill of the diamond and plain stitch together, and fringe, with tassel and bow on the back.

Fig. 3.



Children's dresses can be made in any style or color, and of any kind of stitch and ornamentation required to suit the taste.

Fig. 3 represents the yoke, belt, and bottom of skirt, of blue and black worsted; the balance plain blue or any other color, widened and narrowed to shape in plain stitch, and ornamented with cord, two rows of black and one of blue.

**Fig. 4.****Fig. 5.**

Fig's 4 and 5 represent the front and back of a jacket knit in the cardigan stiteh, with chinchilla worsted, and trimmed with tufting made of white with black spots, in imitation of Ermine fur. This jacket is narrowed and widened to shape, and closed under the arms, on the shoulders, and down the back. Ladies will understand these things without farther explanation.

**Fig. 6.**

Fig's 6 and 7 represent the front and back of child's sacque and hood, made and ornamented to suit the taste.

**Fig. 7.**

**Fig. 8.**



Fig's 8 and 9 represent two styles of infants' shoes. Fig. 8 is made of plain white zephyr, trimmed and bound with a narrow flat web of blue; it is made of three pieces, closed front and back, and buttons at the side; the sole is knit very thick, and bound the same as the rest. Fig. 9 shows one made of the tufted goods, with the tufts inside, ornamented with a strip of the zig-zag stitch, turned down at the top, with cord and tassels. Shoes, slippers, etc., can be made for grown people as well as children, and of any size or style to suit the taste; they can be trimmed around the edge or top with tufting, making them very warm. Inner soles for boots and shoes can be made also very warm, and nice for people that suffer with cold feet.

**Fig. 9.**



Ladies' and Children's Leggings are knit in an endless variety. After a person once understands the machine thoroughly, they will find that they can suit the most fastidious.

Fig. 10.

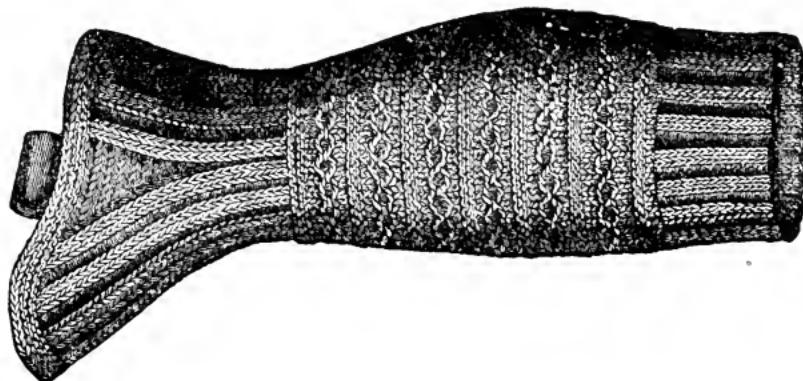
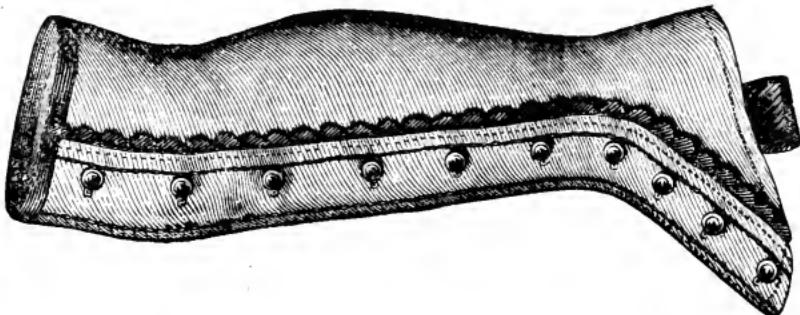


Fig. 11.



Fig's 10 and 11 represent children's or ladies' leggins. The body of Fig. 10 is made with the ornamental stitch running around, and ribbed at the top and bottom, with gore knit in at the side. Fig. 11 shows a plain knit legging, with the side ornamented with a crotchet strip, cord and buttons. This is made to imitate the cloth leggin so much in fashion.

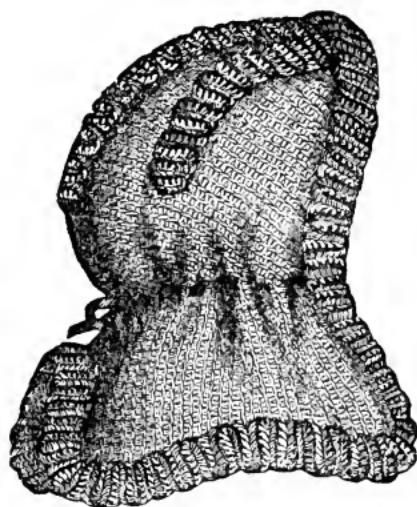
**Fig. 12.**

Fig. 12 represents a hood made of German worsted knit the zig-zag stitch, and trimmed with a strip of tufting all around and over the top. We have a great many styles of hoods, and they are all very nice and pretty.

**Fig. 13.**

Skirts are made of all styles, sizes, and colors, in either plain or fancy stitch.

Fig. 13 represents a gored skirt narrowed down and knit together; it is ornamented with colored stripes, either knit in or sewed on. It is better to sew them on, as you can easily remove them when you wish to wash the skirt.

Fig. 14.



Fig. 14 represents a glove—the hand part is knit plain; the gauntlet is knit in two pieces and joined on the back where it is narrowed; it is knit of two colors in the zig-zag stitch—around the wrist and top of the gauntlet it is trimmed with a narrow strip of tufting of two colors, and a bow on the back.

No family should think of being without one of these beautiful Machines, as they are destined to take the place of the Loom in forming yarn into fabrics for almost every purpose; so do not hesitate for a moment, but send your orders at once.

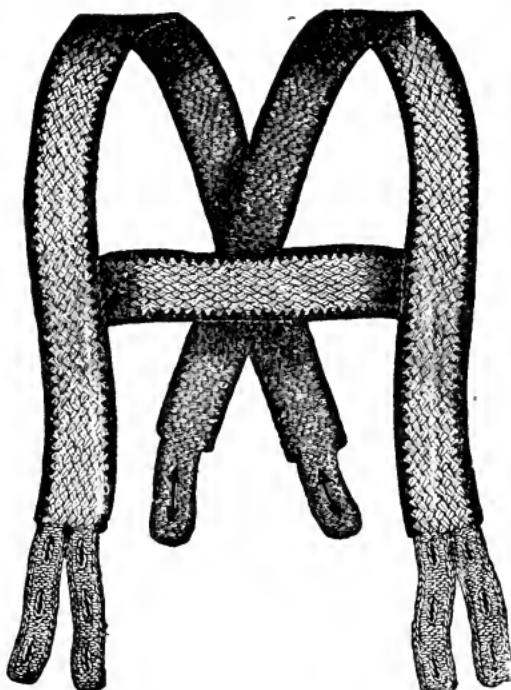
**Fig. 15.**

Fig. 15 represents a pair of suspenders knit of white German wool. If you wish for more elasticity than you get from the stitch, you can knit in a strip of rubber cord.

**Fig. 16.**

Fig. 16 represents a ladies' or gent's slipper, made of the tufting stitch, with the tufts inside, also trimmed around the edge with tufting; the rosette is made of fringe with the loops whole.

**Fig. 17.**

Fig. 17 represents a ladies' sock or over-shoe, and they are the most comfortable thing a lady can have in a co'd day. They can be made of any style or color to suit the taste.

**Fig. 18.**

Fig. 18 represents a pair of ladies' Corsets knit in the common plain stitch, of either German worsted or common yarn. These must be narrowed and widened to shape, and provided with straps for the shoulders.

**Fig. 19.**

Fig. 19 represents either a ladies' or gent's under jacket. This garment, as well as all kinds of under-shirts, drawers, etc., are very easily made to fit and suit the party intended for.

#### MATERIALS, &c.

We have on hand a large assortment of common and fancy yarns, worsteds, etc., which we furnish our customers very low.

Knitting machine oil, prepared expressly for the Bickford Machine, for sale at twenty-five cents per bottle, or two dollars per dozen.

Machine needles at sixty cents per dozen. When needles are ordered by mail, the price and return postage should accompany the order.

All pieces or parts of the machine can be replaced at very little expense, by sending the broken part to our Office, thus avoiding the necessity of sending the whole machine.

**DANA BICKFORD'S**

NEW IMPROVED

**FAMILY KNITTING MACHINE.**

The only practical and efficient Knitting Machine yet introduced.

It will knits 20,000 stitches, or twenty-two inches perfect work per minute, and every Machine is warranted to be in perfect order, and to do just what is represented.

Its operation is easily learned by the aid of full illustrated instructions, descriptive of all parts of the machine, their use, and other valuable suggestions of experienced operators, so plain that a child can readily learn to operate them.

I have now taken the exclusive introduction of my machines, and have greatly improved them, making them the most simple, durable, and efficient Knitting Machines in the world ; they will set up their own work, knit back and forward, making the most perfect hand stitch, carrying every knot and imperfection inside, so that not only all kinds of work, requiring to be knit tubular, can be made, but a flat web with selvedge on each edge.

It narrows and widens a web from one to one hundred and eight needles wide ; finishes the top of a sock with selvedge edge ; knits either a square or a round heel, and closes it to the foot, and narrows off the toe complete, which no other machine will do ; it will also form readily all of the most intricate stitches that can be made by hand, thus making it a complete knitting and crocheting as well as circular and flat web machine combined, and this combination, and our splendid facilities for manufacturing, with our new style of finishing, makes it the most perfect piece of mechanism in the world.

It knits Children's Carriage Mats, Tufted Carriage and Door Mats, Muffs and Collars, Table and Bedspreads of cotton or woolen, with either plain or fancy stitch ; also, the most beautiful Tidies, Cradle Blankets, Scarfs of eight different styles ; Infant's Shirts, Socks, Caps, and Hoods ; Shawls, Breakfast Capes, Jackets, Nubias, Hoods, Under-shirts, Drawers, Skirts, Carriage Afghans, Children's Afghans, Undersleeves, Sashes, Leggins, Smoking and Skating Caps, Suspenders, Purses, Dusters, Watch and Curtain Cords, Mittens,

Gloves, Wristers, Toilet and Lamp Mats, Covers for Curtain Tassels, Fringed Mittens ; Ladies', Gentlemen's and Children's Hose, Socks and Stockings, Fringes, Cords, and Tuftings for Trimmings, &c., with either plain or ribbed, close or open work of various sizes with either coarse or fine yarn of woolen, cotton, linen, or silk.

They require no tension, if the yarn will hold together it can be knit, thereby making soft and beautiful work with the same stitch as hand needles, but much smoother and more even than can be made by the most expert hand-knitter, and the yarn not being strained can be ravelled out and knit over and over again fifty times if necessary. **IT ALSO KNITS TO OLD SOCKS NEW HEELS AND TOES, AND EVEN NEW FEET** if required, or you can ravel them out and knit them over, or knit the old yarn into blankets, etc.

Multiplicity of words are useless to convince the public of the utility of Sewing Machines, as you all know ; and when **DANA BICKFORD'S IMPROVED FAMILY KNITTING MACHINE** becomes generally known and introduced, people will find many uses for them never thought of before, making them more necessary, valuable, and profitable than Sewing Machines, besides being such an endless source of amusement and pleasure.

Hundreds are now in use in different parts of the country, giving general satisfaction, and they are fast winning their way to every household, store, and workshop.

Those possessing the Bickford Family Knitting Machine, can earn from \$3.00 to \$8.00 per day, for they can knit anything and everything that the most ingenious lady can knit or crochet, much nicer and easier, in one-hundredth part of the time. Wool growers and farmers cannot realize but 40 or 50 cents per lb. for wool, but by having it converted into yarn and knit into socks or other goods a much larger profit can be realized by bringing the producer in direct contact with the consumer.

We give personal instructions for doing all of this large variety of beautiful work at our salesrooms, **FREE OF CHARGE**.

Another great advantage in this machine is the various grades of cylinders that fit the same machine. This obviates the necessity of buying a coarse and fine machine, where you wish to go from one extreme to another. (This you do not often wish to do, as one cylinder will answer almost every purpose.) It is a great advantage when you wish for it, however, as one is easily changed for the other, and only costs from three to five dollars extra.

No more useful and entertaining present can be made to a lady, as she would find it a never-failing source of pleasure as well as profit.

Wherever we have been on trial with other machines, we have invariably won the highest encomiums, and secured **THE FIRST PRIZE AT EVERY FAIR** at which we have exhibited.

We make use of but few of the many testimonials that have been sent to us *unsolicited*, showing the intrinsic merits of the machine :

EAST HAVERHILL, N. H., Dec. 8, 1868.

MR. BICKFORD :—I have one of your Knitting Machines. Mrs. Page bought it for me last February, and I would like to have you make the new improvements Mr. Hanson told me about last summer. I would not take fifty dollars for it if I could not get another like it; and I will say more, that no money can buy it if I cannot get another. I am perfectly satisfied with it; it has ten times more than paid for itself since I have had it, and I never have seen the time to spare it long enough to have it improved, and if you can just drop me a line as soon as you receive this, I will send it. I am a widow with two small children, and the little machine is all my support, and I cannot spare it but a short time. Please write me as soon as convenient, and direct to

MRS. JOSIE L. BRYANT, East Haverhill, N. H.

SOUTH BRISTOL, ME., Jan. 7, 1869.

MR. BICKFORD : Respected Sir,—I have received your machine, and like it very much, and wish you great success in future.

Yours respectfully,

MAY E. WEBBER.

WILMINGTON, VT., Jan. 7, 1869.

BICKFORD KNITTING MACHINE CO. : Dear Sirs,—Having had in my family for nearly a year past a Knitting Machine of your manufacture, I take pleasure in stating that it is a great favorite with us; and after having made trial of the Lamb Knitting Machine to test the comparative excellence of the two, pronounce, without hesitation, in favor of the Bickford Machine. It takes up little room, runs with perfect ease, makes a greater variety of work, is much less liable to drop stitches and break yarn, and with all, costs only about half the amount of the "Lamb Machine." You are at liberty to make what use you deem expedient of the above statements.

Yours truly,

N. W. WILDER, Pastor M. E. Church.

## LIST OF PRICES OF THE BICKFORD MACHINE.

---

No. 1 is the regular Family Machine with all late improvements and the common Coarse Cylinder, - - - - -	\$25.00
No. 2 is the regular Family Machine with all late improvements with the Fine Cylinder, - - - - -	28.00
No. 3, the Family Machine, with both Coarse and Fine Cyl- inders, - - - - -	30.00
No. 4 Machine with both Cylinders, nicely plated with Silver, - - -	40.00
No. 5 the same, finished in Gold and Silver Plate, - - -	45.00

This machine is made to be attached to any table or stand; still,  
we furnish Tables and Cabinets anywhere from \$8 to \$50.

The following articles accompany each machine, viz: Bobbin-winder, three bobbins, swift, oiler, six extra needles, and full printed instructions, by which any one can readily learn to operate the machines. A screw-driver goes with the extra cylinders.

To save expense for collections, or mistakes, where parties live at a distance, they should send a check, draft, post-office order, or the money, with address, directions, etc., plain and distinct. We do send machines short distances C. O. D., but when they are to go a long distance in this way, at least ten per cent. of the price must accompany the order.

Efficient and reliable Agents wanted in every section of the country, with whom the most liberal terms will be made.

All orders and communications must be addressed to

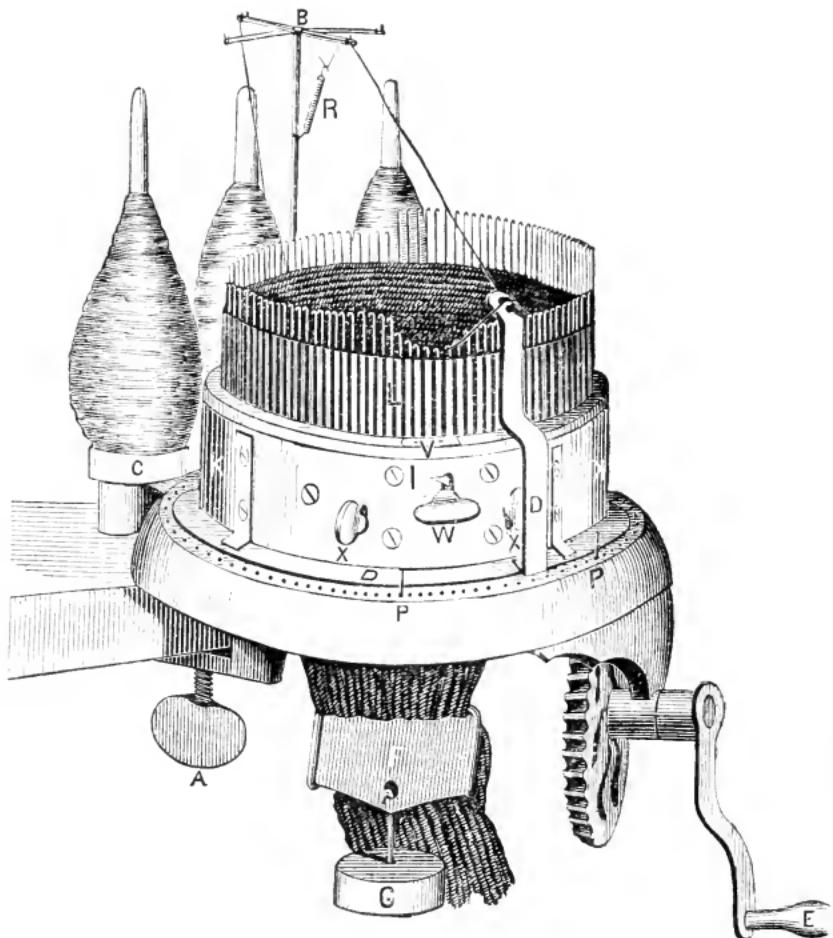
**DANA BICKFORD,**  
Vice Pres't and General Agent.

OFFICE AND SALESROOMS,  
**572 AND 574 BROADWAY, N. Y.,**  
(Metropolitan Hotel Building.)





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